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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,462	04/21/2004	Shinji Matsumoto	023971-0409	4011
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EXAMINER				
MANCHO, RONNIE M				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/828,462

Applicant(s)

MATSUMOTO ET AL.

Examiner

RONNIE MANCHO

Art Unit

3664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-32 is/are pending in the application.
- 4a) Of the above claim(s) 28-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 1/12/09

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 18-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 18 and 23 recite, "*an absolute value of the future lateral displacement immediately before the lane marking detection section cannot recognize or detect the lane marking line* is greater than or equal to a predetermined lateral displacement criterion". How does an absolute value recognize or detect the lane marking line? The limitation is not enabled in the specification commensurate with scope, thus not enabling one skilled in the art to make and use the invention.

The rest of the claims are rejected for depending on a rejected base claim.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-27 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 and 23 recite, " an absolute value of the future lateral displacement immediately before the lane marking detection section cannot recognize or detect the lane marking line is greater than or equal to a predetermined lateral displacement criterion". The claims do not particularly point out an distinctly claim the subject matter which applicant regards as his invention.

The limitation discloses fused sentences, thus not distinctly disclosing applicant's invention.

The rest of the claims are rejected for depending on a rejected base claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (5913375) in view of Kagawa et al (6185492).

Regarding claim 18, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) disclose an automotive lane deviation prevention (LDP) apparatus comprising:

a lane marking detector 10 (figs. 1&3; col. 7, lines 15-24) configured to detect a lane marking line of a driving lane (col. 7, lines 56-62) of a host vehicle, based on a picture image in front of the host vehicle;

a lateral displacement estimation section (CPU 1) configured to estimate, based on the lane marking line, a future lateral displacement of the host vehicle relative to the host vehicle's driving lane (col. 7, lines 55-67; fig. 4)

a vehicle yaw motion control section (60, fig. 3) configured to execute a vehicle yawing motion control (col. 7, lines 41-55) by which the host vehicle returns toward a center position of the host vehicle driving lane (see abstract; col. 6, lines 67 to col. 7, line 30; col. 8, lines 63 to col. 9, line 10; fig. 4).

Nishikawa et al disclose a camera 10 for detecting a road surface lane markers. Nishikawa did not particularly indicate that the lane markers have irregularities. However, Kagawaga (figs. 3, 9, 10; col. 9, lines 40-65) teaches of using a camera to detect road surface irregularities (grooves 60, fig. 3) associated with lane markers on a road surface to determine whether a vehicle is traveling on predetermined road surface irregularities.

Therefore, it would have been obvious to one having ordinary skill in the art to modify Nishikawa as taught by Kagawa for the purpose of better determining the boundaries of lanes of travel of a vehicle.

Therefore, Nishikawa (col. 7, lines 41-55) in view of Kagawa (abstract; col. 9, lines 40-65) both disclose that the vehicle yawing motion control section initiates the vehicle yawing motion control when the host vehicle is traveling on predetermined road surface irregularities.

Regarding claim 21, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa disclose the automotive lane deviation prevention apparatus as claimed, but did not disclose vehicle-suspension up-and-down motion sensor. However, Sasaki et al (col. 1, lines 53-57) a vehicle-suspension up-and-down motion sensor

configured to detect an up-and- down motion (i.e. vertical acceleration) of a suspension of a host vehicle, wherein the road surface irregularities detection section is configured to determine, based on the suspension's up-and-down motion detected, whether the host vehicle is traveling on predetermined road surface irregularities (a recess and a convex formed on road surface).

Therefore it would have been obvious to modify Nishikawa and Kagawa as taught by Sasaki for the purpose of better controlling a vehicle suspension.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (5913375) and Kagawa et al (6185492) and further in view of Sasaki et al (5638275).

Regarding claim 22, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa disclose the automotive lane deviation prevention apparatus as claimed, but did not disclose an area except road-ways; and inhibiting a check for the host vehicle traveling on the predetermined road surface

However Sasaki teaches of a processor programmed to perform the following:

determining whether the host vehicle is traveling within an area except road-ways (an area except roadway is interpreted as off road areas or areas with recesses and convex on the surface a vehicle is moving on; see Sasaki col. 1, lines 53 to col. 2, line 9);

and

inhibiting a check for the host vehicle traveling on the predetermined road surface irregularities, when the host vehicle is traveling within the area except road-ways (*inhibiting a check for a vehicle is interpreted as cancelling vehicle acceleration of vehicle caused by front wheels after the front wheels have passed the areas with recesses and convex on the surface a vehicle is moving on; see Sasaki col. 2, lines 10-26*).

8. Claims 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (5913375) in view of Kagawa et al (6185492) as applied to claim 18 and further in view of Lida et al (5604307).

Regarding claim 19, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa disclose the automotive lane deviation prevention apparatus as claimed, but did not disclose wheel speed sensors used for determining that the vehicle is traveling on predetermined road surface irregularities. However, Lida (abstract; fig. 4, etc; col. 7, lines 4-33) teaches of a vehicle comprising wheel speed sensors that detect respective wheel speeds of road wheels of a host vehicle, wherein a road-surface irregularities detection section is configured to determine that the host vehicle is traveling on predetermined road surface irregularities when at least one of the wheel speeds detected by the wheel speed sensors is fluctuating at a substantially constant oscillation frequency in relation to a host vehicle speed.

Therefore it would have been obvious to modify Nishikawa and Kagawa as taught by Lida for the purpose of better detecting of pressure in a tire

Regarding claims 20, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa and Lida et al disclose the automotive lane deviation prevention apparatus as claimed, wherein:

the road-surface irregularities detection section is configured to determine that the host vehicle is traveling on predetermined road surface irregularities only when either one of left and right wheel speeds is fluctuating (see Lida col. 7, lines 4-33).

9. (*As Best Understood*) Claims 23, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (5913375) in view of Kagawa et al (6185492).

Regarding claim 23, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) disclose an automotive lane deviation prevention (LDP) apparatus comprising:

a lane marking detector means 10 (figs. 1&3; col. 7, lines 15-24) configured to detect a lane marking line of a driving lane (col. 7, lines 56-62) of a host vehicle, based on a picture image in front of the host vehicle;

a lateral displacement estimation means (CPU 1) configured to estimate, based on the lane marking line, a future lateral displacement of the host vehicle relative to the host vehicle's driving lane (col. 7, lines 55-67; fig. 4)

a vehicle yaw motion control means (60, fig. 3) configured to execute a vehicle yawing motion control (col. 7, lines 41-55) by which the host vehicle returns toward a center position of the host vehicle driving lane (see abstract; col. 6, lines 67 to col. 7, line 30; col. 8, lines 63 to col. 9, line 10; fig. 4).

Nishikawa et al disclose a camera 10 for detecting a road surface lane markers. Nishikawa did not particularly indicate that the lane markers have irregularities. However, Kagawaga (figs. 3, 9, 10; col. 9, lines 40-65) teaches a road surface irregularities detection means (see camera 12) for detecting road surface irregularities (grooves 60, fig. 3) associated with lane markers on a road surface to determine whether a vehicle is traveling on predetermined road surface irregularities.

Therefore, it would have been obvious to one having ordinary skill in the art to modify Nishikawa as taught by Kagawa for the purpose of better determining the boundaries of lanes of travel of a vehicle.

Therefore, Nishikawa (col. 7, lines 41-55) in view of Kagawa (abstract; col. 9, lines 40-65) both disclose that the vehicle yawing motion control section initiates the vehicle yawing motion control when the host vehicle is traveling on predetermined road surface irregularities.

Regarding claim 26, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa disclose the automotive lane deviation prevention apparatus as claimed, but did not disclose vehicle-suspension up-and-down motion sensor. However, Sasaki et al (col. 1, lines 53-57) a vehicle-suspension up-and-down motion sensor means configured to detect an up-and- down motion (i.e. vertical acceleration) of a suspension of a host vehicle, wherein the road surface irregularities detection section is configured to determine, based on the suspension's up-and-down motion detected, whether the host vehicle is traveling on predetermined road surface irregularities (a recess and a convex formed on road surface).

Therefore it would have been obvious to modify Nishikawa and Kagawa as taught by Sasaki for the purpose of better controlling a vehicle suspension.

10. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (5913375) and Kagawa et al (6185492) and further in view of Sasaki et al (5638275).

Regarding claim 27, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa disclose the automotive lane deviation prevention

apparatus as claimed, but did not disclose an area except road-ways; and inhibiting a check for the host vehicle traveling on the predetermined road surface

However Sasaki teaches of a processor programmed to perform the following:

determining whether the host vehicle is traveling within an area except road-ways
(an area except roadway is interpreted as off road areas or areas with recesses and convex on the surface a vehicle is moving on; see Sasaki col. 1, lines 53 to col. 2, line 9);
and

inhibiting a check for the host vehicle traveling on the predetermined road surface irregularities, when the host vehicle is traveling within the area except road-ways
(inhibiting a check for a vehicle is interpreted as cancelling vehicle acceleration of vehicle caused by front wheels after the front wheels have passed the areas with recesses and convex on the surface a vehicle is moving on; see Sasaki col. 2, lines 10-26).

11. Claims 24, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (5913375) in view of Kagawa et al (6185492) as applied to claim 18 and further in view of Lida et al (5604307).

Regarding claim 24, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa disclose the automotive lane deviation prevention apparatus as claimed, but did not disclose wheel speed sensors used for determining that the vehicle is traveling on predetermined road surface irregularities. However, Lida (abstract; fig. 4, etc; col. 7, lines 4-33) teaches of a vehicle comprising wheel speed sensors that detect respective wheel speeds of road wheels of a host vehicle, wherein a road-surface irregularities detection section is configured to determine that the host vehicle is traveling on predetermined road

surface irregularities when at least one of the wheel speeds detected by the wheel speed sensors is fluctuating at a substantially constant oscillation frequency in relation to a host vehicle speed.

Therefore it would have been obvious to modify Nishikawa and Kagawa as taught by Lida for the purpose of better detecting of pressure in a tire

Regarding claims 25, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) in view of Kagawa and Lida et al disclose the automotive lane deviation prevention apparatus as claimed, wherein:

the road-surface irregularities detection section is configured to determine that the host vehicle is traveling on predetermined road surface irregularities only when either one of left and right wheel speeds is fluctuating (see Lida col. 7, lines 4-33).

Response to Arguments

12. Applicant's arguments filed 3/11/09 have been fully considered but they are not persuasive.

Applicant argues that the claims have been amended to overcome the 112 rejections. The argument is not convincing. As an example, claims 18 and 23 recite, “***an absolute value of the future lateral displacement*** immediately before the lane marking detection section cannot ***recognize or detect the lane marking line*** is greater than or equal to a predetermined lateral displacement criterion”. How does an absolute value recognize or detect the lane marking line? The limitation is not enabled in the specification commensurate with scope, thus not enabling one skilled in the art to make and use the invention.

Applicant further argues that the prior art does not disclose the invention. The examiner disagrees and notes that, Nishikawa et al (abstract, figs. 1-5; col. 5, lines 1-17; col. 6, lines 35-67, col. 7, lines 10-67) disclose an automotive lane deviation prevention (LDP) apparatus comprising:

a lane marking detector 10 (figs. 1&3; col. 7, lines 15-24) configured to detect a lane marking line of a driving lane (col. 7, lines 56-62) of a host vehicle, based on a picture image in front of the host vehicle;

a lateral displacement estimation section (CPU 1) configured to estimate, based on the lane marking line, a future lateral displacement of the host vehicle relative to the host vehicle's driving lane (col. 7, lines 55-67; fig. 4)

a vehicle yaw motion control section (60, fig. 3) configured to execute a vehicle yawing motion control (col. 7, lines 41-55) by which the host vehicle returns toward a center position of the host vehicle driving lane (see abstract; col. 6, lines 67 to col. 7, line 30; col. 8, lines 63 to col. 9, line 10; fig. 4).

Nishikawa et al disclose a camera 10 for detecting a road surface lane markers. Nishikawa did not particularly indicate that the lane markers have irregularities. However, Kagawaga (figs. 3, 9, 10; col. 9, lines 40-65) teaches of using a camera to detect road surface irregularities (grooves 60, fig. 3) associated with lane markers on a road surface to determine whether a vehicle is traveling on predetermined road surface irregularities.

Therefore, it would have been obvious to one having ordinary skill in the art to modify Nishikawa as taught by Kagawa for the purpose of better determining the boundaries of lanes of travel of a vehicle.

Therefore, Nishikawa (col. 7, lines 41-55) in view of Kagawa (abstract; col. 9, lines 40-65) both disclose that the vehicle yawing motion control section initiates the vehicle yawing motion control when the host vehicle is traveling on predetermined road surface irregularities.

It is believed that the prior art anticipates the claims.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONNIE MANCHO whose telephone number is (571)272-6984. The examiner can normally be reached on Mon-Thurs: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Khoi can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ronnie Mancho
Primary Examiner
Art Unit 3664

7/1/2009

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